



DECUS

PROGRAM LIBRARY

DECUS NO.	8-370A
TITLE	FBUILD
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FBUILD

DECUS Program Library Write-up

DECUS No. 8-370A

0.0 Identification/Introduction

0.1 Identification

FBUILD, September 10, 1970

Author: Bruce Taylor
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0.2 Reference

"DISK" Utility Program -- DECUS No. 8-370B

0.3 Contents

1.0 Description

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3.0 Initializing the Disk

4.0 Recovery

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1.0 Description

1.1 FOCAL Tape System

The FOCAL-LIBRA 7-USER system is designed around the idea of disk storage containing multiple files. Though DECTape cannot be accessed under the LIBRA system, an installation with at least one DECTape unit has the potential for recording the contents of the FOCAL-LIBRA disk on DECTape and restoring them later. This capability means that a FOCAL-LIBRA system can be continuously updated since the current working disk can be saved and recalled at will. To this end, overlays have been written for the FOCAL-LIBRA system to make it compatible with the DISK utility program. The user of this system is assumed to be familiar with the DISK program, and the FOCAL-LIBRA overlays.

1.2 Tape Organization

A FOCAL System Tape is divided into the following sections:

- | | |
|---------------------|------------------------------|
| 1. Blocks 0-7 | DISK program |
| 2. Blocks 10-1007 | Disk Image "A" |
| 3. Blocks 1010-2007 | Disk Image "B" |
| 4. Blocks 2010-2047 | FOCAL core image (0000-7777) |
| 5. Blocks 2050-2053 | LIBRA core image (7200-7777) |
| 6. Blocks 2060-2114 | LIBRA core image (0000-7177) |

1.3 Disk Image Storage

FOCAL disk images may be saved in disk image area "A" and disk image area "B". Disk image area "C" is reserved for the FOCAL-LIBRA system and may not be used for disk image storage.

2.0 Building the system

2.1 System Generation

The user should assemble a binary tape of the FOCAL-LIBRA overlays as described in the manual of the FOCAL-LIBRA overlays. The two assembly parameters EAE and TAPE must be equated to 1, or no tape code will be generated.

2.2 Loading the DECtape

The FOCAL TAPE SYSTEM BUILDER is designed to read all the paper tapes involved in the FOCAL-LIBRA system (FOCAL 1969, LIBRA.DF32, FOCAL-LIBRA overlays) and write the various sections in the correct tape blocks as described in section 1.2. The loading is broken into six jobsteps. Each time the loader halts for a new jobstep, the Accumulator will display the number of the next jobstep to be executed (as numbered in section 2.22).

2.21 Preliminary Setup

1. Mount the DECtape to be written on drive #1, in the REMOTE state and with the WRITE ENABLE on.
2. Load the binary tape of the FOCAL TAPE SYSTEM BUILDER into Field 0 and start at location 2000. The DISK program will be automatically written into blocks 0-7. The program will halt with a 0001 in the Accumulator. This Jobstep code indicates that Jobstep #1 is the next to be executed.

2.22 Jobsteps

1. Mount the FOCAL 1969 tape (DEC-08-AJAE-PB) in the high or low speed reader and set bit 0 of the switch register to 1 indicate the reader selected (1=low speed reader; 0=high speed reader). Press CONTINUE. FOCAL will be loaded into field 1. Do not load the Initial Dialogue section of the FOCAL tape.
2. Mount the LIBRA system tape (DEC-08-AJ5E-PB) in the reader and press CONTINUE. Selected portions of LIBRA will be loaded into Field 1. Do not load the Disk Initializer section of the LIBRA tape.

3. Mount the FOCAL-LIBRA overlay tape in the reader and press CONTINUE.

Selected portions of the overlays will be read into Field 1. All of field 1 will automatically be written into blocks 2010-2047 of the tape.

4. Mount the LIBRA System Tape (DEC-08-AJ5E-PB) in the reader and press CONTINUE. The portions of LIBRA not loaded in Jobstep 2 will be loaded into Field 1.
5. Mount the FOCAL-LIBRA overlays in the reader and press CONTINUE. The portion of the overlays not loaded in Jobstep #3 will be loaded into Field 1.
6. Set the number of files to be maintained in the protected area of disk in the switch register. (See section 3.3 of the FOCAL-LIBRA OVERLAY MANUAL for a description of the protect boundary). If no protect boundary is desired, the switch register should be set to 0000. The protect boundary should never be set to a negative number. Press CONTINUE.

Locations 7200-7777 of Field 1 will automatically be written to blocks 2050-2053 of the tape. Locations 0000-7177 of Field 1 will be written to blocks 2060-2114 of the tape. The loader will enter the DISK program in Field 0 and type "WHICH DISK?".

3.0 Initializing the Disk

If the Disk Image Areas are not to be initialized for FOCAL use, skip to section 4.0.

- 3.1 Type "S" in answer to the "WHICH DISK?" question. The DISK program will ask "START=". Set bit 11 of the switch register up and type "F". The DISK program will load the FOCAL-LIBRA system. Since

bit 11 is up, the FOCAL-LIBRA system will enter one of the following states:

- a. For a system with PT08 teletypes, it will halt at location 7201.
- b. For a system with type 680 teletype system, it will enter an input wait state at location 7206. Press STOP.

3.2 Key the RIM loader into Field 0 and use it to load the Binary loader into Field 0.

3.3 Use the Binary Loader to load the DISK INITIALIZE program (the last section of the LIBRA.DF32 tape (DEC-08-AJ5E-PB)). Start the system at 0200 of Field 0. This action will start the DISK INITIALIZE program.

3.4 Respond to the dialogue as follows (underlined text is user response):

```
FOCAL DISK (DF32) INITIALIZE? YES
NO. DISK SURFACES 1,2,3, or 4 (DISK utility program as coded
                           assumes 2 surfaces)
nnnn FREE BLOCKS
DIRECTORY WRITTEN
SWAP AREAS INITIALIZE? YES
SWAP AREAS WRITTEN
TO FOCAL
```

3.5 The FOCAL-LIBRA system will be entered and will type ?00.00 on all active teletypes. Stop the system by setting bit 11 of the switch register up. For Systems with 680 teletypes, press STOP.

3.6 Change the following two locations in the Binary Loader (which have been changed by disk I/O operations):

7750/1355

7751/5743

Use the Binary Loader to load the DISK program and start the DISK program at location 0200 of field 0.

3.7 Respond to the dialogue as follows (underlined text indicates user response):

*WHICH DISK?

A /This is a CTRL-A

*REALLY? Y

/disk image A will be written to tape

*START=R

*WHICH DISK?

B /This is a CTRL-B

*REALLY? Y

/disk image B will be written to tape

*START=R

*WHICH DISK?

/go to section 4.0

4.0 Recovery

Use the DISK program to load a good disk image from a previously created DISK system tape. If no such tape is available, answer the "WHICH DISK?" question "S". When the disk program types "START=" type "L". The Binary Loader is now in Field 1 and may be used to load a system recovery tape.

5.0 System Propagation

When one FOCAL system tape has been generated, it can be propagated by judicious use of the DISK program. Thus, once the first FOCAL system tape has been generated, the FOCAL TAPE SYSTEM BUILDER need only be used to reset the protect boundary.